

REMARKS

In response to the Office Action of May 21, 2003, the specification has been amended to comply with Rule 77. In addition, claims 1-5 have been cancelled and replaced by new claims 12-17 to place the claims in more conventional U.S. format and to avoid improper "preferably" clauses. Support for claim 14 can be found on page 4, line 30 to page 5, line 7. Support for claim 15 can be found on page 5, lines 8-11. No amendments have been made in view of the cited prior art and the scope of the claims remains the same. Finally, non-elected claims 6-11 have been cancelled to advance the prosecution of the application.

In the Office Action, the Examiner rejected claims 1-5, now claims 12-17, under 35 U.S.C. § 103(a) over DE 19701045 to Gorak et al. (hereafter Gorak) in view of U.S. 5,431,890 to Crossland et al. (hereafter Crossland).

As noted by the Examiner, Gorak teaches all of the elements and features of the structured multi-purpose packings of the man claim except that the walls of the chambers of the second functionality elements are of a polymeric material (claim 12). As set forth in claims 13 and 14, the polymeric material can be a polyamide, preferably nylon, a polyolefin, preferably polyethylene or a halogenated polyolefin such as polytetrafluoroethylene or polyvinyl chloride. In Gorak, the walls of the second functionality elements are of metal-wire cloth. See the discussion of Gorak on page 3, lines 27-34 of the present specification.

Crossland is cited to show that in a catalytic environment, polymeric mesh, of for example nylon or teflon, is considered the functional equivalent of metal screen wire, referring to column 2, lines 22-30 of Crossland.

The Examiner, therefore, believes it would be obvious to use the nylon polymeric mesh of Crossland instead of the metal-wire cloth of Gorak as the material for the walls of the chambers of the second functionality elements.

It might well have been obvious to have used teflon or nylon as the material for constructing the walls of the second functionality elements if the substitution of the material for the metal wire cloth of Gorak resulted in an insignificant difference in the performance of the packings. However, it has been clearly demonstrated that such polymeric materials exhibit advantages over the metal materials disclosed in Gorak. These advantages are clearly demonstrated in the Examples of the present application (see Examples 1 and 2 versus Comparative Examples 1 and 2 on page 13). As discussed therein, Comparative Examples 1 and 2 are multifunctional packing materials like Gorak where the walls of the chambers of the second functionality elements were made of steel, whereas Examples 1 and 2 were identical multifunctional packing material where the walls of the chambers of the second functionality elements were instead made of polyethylene fabric.

The packings were then used in a reactor for the preparation of tertiary amyl alcohol (TTA) from isoamylene and water. The conditions of the reaction in the reactor and the results of it are set forth in Table 1.

As can be seen from Table 1, the TAA production was significantly better, using identical amounts of isoamylene as the feed stream, when the packings of the invention were used compared to when packings similar to Gorak were used (nearly 40% higher at the higher feed rate of isoamylene).

Clearly these results could not have been predicted from Crossland, particularly since Crossland prefers wire mesh in the drawings of the reference.

As noted by the Federal Circuit

In Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 U.S.P.Q. 2d 1434 (Fed. Cir. 1988):

Something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. [837 F.2d at 1051, 5 U.S.P.Q. 2d at 1438, citing Lindemann, 730 F.2d 1452, 1462, 221 U.S.P.Q. 481, 488 (Fed. Cir. 1984).]

or the more recent case of In re Kotzab, 217 F.3d 1365, 1369-70, 55 U.S.P.Q. 2d at 1313, 1316 (Fed. Cir. 2000):

A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of the invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher.

Most if not all inventions arise from a combination of old elements. Thus, every element of a claimed invention may often be found in the prior art. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. [citations omitted]

Where is the "desirability" suggested in Crossland that is necessary to make the substitution suggested by the Examiner? If the use of the polymeric mesh of Crossland for the walls of the chambers of the second functionality elements had essentially the

same effect on the production results that were achieved when metal was used, the substitution might well be considered obvious, but when the substitution results in unexpected and improved results, it cannot be considered obvious. As noted by the court in in re Dow Chemical Co., 837 F.2d 469, 5 U.S.P.Q. 2d 1529 (Fed. Cir. 1988) "both the suggestion of the invention and the expectation of its success must be found in the prior art "(emphasis added). See also M.P.E.P. §716.02(a).

Withdrawal of the combination of Gorak and Crossland as a ground of rejection of the claims and allowance of claims 12-17 is therefore requested.


In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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